Examining belief adjustment model on investment decision making

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Abstract: This research aims to examine the influence of order effects and response mode [a step by step (SbS) and an end of sequence (EoS)] or belief adjustment model on investment decisions making. The contribution of this research to the accounting literature is the existence of Belief Adjustment model developed by Hogarth and Einhorn that will be tested in this study in setting the investment decision.

Experiment method is used to examine the research hypotheses. Final participant(s) in this research were (are) 93 people who are accounting students majoring in accounting at the private university in Surabaya, Indonesia. The results of this study show that a step by step (SbS) response mode tends to find significant recency effect, while judgment that require only one judgment at the end of the evidence series. Meanwhile, an end of sequence (EoS) response mode tends to find no recency effect.

Practical implications of the research is to understand the impact of the presentation of accounting information, the order of information presentation, and the presentation of information investment decision pattern. For the Capital Market Supervisory Agency (BAPEPAM), this research may contribute to setting policies related to information order and disclosure pattern.

Keywords: step by step; SbS; end of sequence; EoS; order effect; recency effect; investment decision.

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1 Introduction

The charm to invest in the stock market is always interesting to be observed. Index movement and fluctuation of stock price fluctuation give an opportunity for the investors to earn a considerably great profit. It cannot be denied indeed that such a fluctuating movement may give a risk of loss to investors. Therefore, there are many people who avoid making stock investment and consider it as high risky business. The investors then have to take that risk to earn the greater profit. However, they can minimise the risk.

The investors need information to analyse their investment. This information is not only due to the company financial performance but also non-financial performance and its prospect in the future. This is because such information reflects uncertainty faced by the company. The understanding of investors about information or any disclosure presented by the company is important to make an investment decision.

The investors have to make such as a decision in an unstable environment. The investors must choose whether they are going to withhold their investment. The ability of decision-makers to identify new information accurately shall decide whether the decision made by them is correct or incorrect. Ideally, any consideration made by an individual in order to take such as the investment decision is based on a systematic, tight, and rational stage. Normative theory in taking consideration and making decision will ensure the individual to do so. However, due to bonded rationality, this theory is replaced by descriptive theory, which believes that taking a consideration during the process of decision making generally uses empiric-realistic approach and heuristic strategy that are the simplification of decision making. The application of heuristic strategy often causes such a bias in the consideration taken to decide a decision, or it is usually called as heuristic bias.

It is believed that an individual would start with the initial belief before taking any consideration to decide and then followed by revision to such a belief. Whether his or her belief will be strengthened or weakened, it shall depend on the strength and direction of audit evidence that he/she acquires. Hogarth and Einhorn (1992) proposed the belief adjustment model which proposition is that an individual who processes information sequentially will use the anchoring process and adjustment. This model is particularly attractive since it is compared to the alternative judgment model that is the adjustment of a set of unique prediction. Specifically, the belief adjustment model predicts that there is not any order effect on the consistent evidence (totally positive or totally negative, but the recency effect order) that occurs when an individual acquires various evidence (some are positive, and some are negative).

The consideration to revise a belief often takes the order of evidence instead of the essence or substance of such evidence into account. This is one of the biases as the consequence of consideration, and it is known as the effect of order (order effect) which is the part of heuristic bias. This is shown in the study done by Pinsker (2007) in which it concluded that when a set of short serial information revealed sequentially in a positive (negative) consistent way, the belief revision of stock price decision significantly is larger in such a sequential condition. The effect of order, especially recency effect will often come up when the disclosure pattern is sequential or step by step (SbS) which is shown in the study done by Messier (1992) and Asare (1992).

This study aimed to test the order effect in decision-making of investment. This study tries to expand the study done by Pinsker (2007) and Ashton and Kennedy (2002) by examining the recency effect on SbS pattern of disclosure (SbS) and end of sequence (EoS) with respect to the judgment decision of company by means of company financial statement. This research contribution to the accounting literature is the existence of belief adjustment model developed by Hogarth and Einhorn that will be examined in this study in setting the investment decision. There are 93 participants who are in their last year of their study and are the students of an accounting department of private university in Surabaya. The result of this study indicates that the existence of order effect in decision-making of investment is recency effect if the disclosure pattern is SbS. This study also delivers evidence of that recency effect absent if the disclosure pattern is ended by sequence (EoS).

2 Literature review and hypothesis development

2.1 The belief adjustment model

Hogarth and Einhorn (1992) proposed the belief adjustment model which proposition is an individual who processes information sequentially will use the anchoring process and adjustment. This model is particularly attractive since it is compared to the alternative judgment model that is the adjustment of a set of unique prediction. Specifically, the belief adjustment model predicts that there is not any order effect on that consistent evidence (totally positive or totally negative, but the recency (order) effect that occurs when an individual acquires various evidence (some are positive, and some are negative). The primary advantage of the belief adjustment model developed by Hogarth and Einhorn (1992) is the inclusion of three main characteristics of evidence employed in Bayes' Theorem (direction, strength and type) while it also broadened Bayes' Theorem by including two additional characteristics that are ignored by Bayes' Theorem, which are information order and information presentation model. The direction of evidence shall indicate whether the evidence encourages or discourages the belief of individual today. The additional evidence that encourages the belief is called positive (or conforming) evidence, while the additional evidence that discourages belief is called negative evidence (or disconfirming) evidence. The second characteristic of additional evidence is its strength or level of evidence that courage or discourage the belief had on today. Finally, type of evidence can be categorised into consistent evidence or mixed evidence. When all additional evidence has the same direction (both positive and negative), it is categorised as the consistent type of evidence. On the other hand, when some evidence is negative and some are positive, it is categorised as mixed evidence.

The prediction or belief adjustment model may implicate the investors. There is some evidence of the belief adjustment model with respect to the behaviour of investors. Pinsker (2007) concludes that when a series of short information that is consistently positive (negative) is revealed sequentially instead of simultaneously, *so* the revision of belief to the decision of the stock market is significantly larger in such as sequential condition. The result of study done by Tuttle et al (1997) encourages the order effect on short serial of consistent information.

2.2 The information order effect and disclosure pattern

With respect to the consideration in evaluating the acquired evidence or information, an individual ideally is based on the substance of such evidence, so that belief or conclusion is made by virtue of the substance of evidence instead of the order of evidence or information. The order effect occurs when the decision made by individual is different after receiving evidences in different order. In such order of evidences, the character of evidence is mixed between confirmative information (positive) and unconfirmed information (negative). When the first information in the order has a large effect on the belief of individual then such order effect is called *primary effect*. On the other hand, when the last information is the one that gives the largest effect then it is called *recency effect*. The results of empiric study (Ashton and Ashton, 1998; Tubbs et al., 1993) indicate that the recency effect is not found when the acquired evidences give consistent information, both confirmative and disconfirmed. Whereas, the recency effect occurs when the evaluated evidences have mixed information that is confirmative and disconfirmed.

The phenomena of order effect happen when judging new evidence and the next adjustment is based on insufficient additional evidence. Hogarth and Einhorn (1992) adopt the general concept of belief adjustment, including the bias occur and shape the psychological working frame known as belief adjustment model. This model predicts the review when an individual evaluates the complex short serial evidence and combined or mixed evidence (positive and negative evidence). It is short serial evidence when there are 12 items of evidence maximally. The complexity is due to job familiarity and length of evidence item. Combined or mixed evidences consist of both positive and negative items.

Ashton and Ashton (1988) shows that the subject is easy to revise his/her belief when receiving new evidence, while the literature of decision theory states that an individual generally tends to avoid new evidence. Ashton and Ashton (1988) also gives an evidence that the subject revises his/her belief to be greater when receiving an evidence that is in contradiction with his/her belief today, while the literature states that an individual will generally be highly influenced by those evidences conform to his/her belief.

Bamber et al. (1997) gives such a strong support with respect to belief adjustment model description validity. The belief adjustment model predicts the order effect on all cases of respond model (*SbS* or *EoS*), job complexity and information length. Several individual investors are easily affected by evidence prone; they will look for market information as the ground to make their decision of investment. Such indication is shown by rapid business growth with respect to information media used by the company (company website, for example) and the need of investor for punctual information.

Tuttle et al. (1997) tests the order effect on market efficiency and concludes that an individual investor who receives for clues/evidences indicates the presence of review.

Hogarth and Einhorn's model (1992) predict(s) that decision made after all evidences are acquired known as *SbS* respond model tends to have the *recency effect*. The phenomena of recency effect are also supported by the study done by Messier (1992) which gives evidence that the auditor staff who receives complex and various evidences (negative and positive information) with sequential pattern of disclosure will have the *recency effect*. Asare (1992) also gives such similar evidence that is the presence of *recency effect* on the audit manager and partner with respect to *judgment going concern* when the pattern of evidence disclosure is sequential (*SbS*). The same thing is also shown by Tubbs et al. (1993) that indicates the presence of *recency effect* when an individual receives inconsistent evidence although he/she has already been trained to understand his/her job and give better judgment to the evidence, but *recency effect* is still found in such condition. The support to *order effect* argumentation in the disclosure pattern of *SbS* is also given by the study done by Ahlawat (1999), Baird and Zelin (2000), Guiral-Contreras et al. (2007). The study of *order effect* in Indonesia has already been done by Nasution (2007) who shows that the order of evidences will affect the *judgment* auditor. Based on said argumentation, the hypothesis of study can be formally stated as follows:

H1 There is a different judgment between the investor who receive(s) + + – – and the one who receives – –+ + order of information in SbS disclosure pattern.

H2 The recency effect will happen to the judgment Investor when receiving + + – – or – – + + order of information in SbS disclosure pattern.

Hogarth and Einhorn's model (1992) predicts that the decision made each time receiving evidences known as SbS tends to have the recency effect, while the decision made only once after receiving all evidences known as EoS respond model tends to show no recency effect. EoS can reduce the recency since the reverse effect caused by the gradually presented information can be eliminated by combining the effects of positive and negative evidences that consequently remove the individual effect of positive and negative evidences.

Kennedy (1993) finds that the accountability shall reduce recency in the decision of business failure possibility, Cushing and Ahlawat (1996) gives evidence that recency can possibly be reduced when the auditor requires *going concern* decision documentation. The study done by Butler (1985), Heiman (1990) and Koonce (1992) also indicates that *de-biasing* method is the most effective method to reduce the recency effect compared to data accountability and documentation. The study done by Messier and Tubbs (1994) indicates that *recency effect* does not happen to the more experienced auditor which is different from the study done by Krull et al. (1993) which delivers evidence that experience will increase order effect, so that the more experienced auditor will give more responds to new evidence than the less experienced auditor.

In the context of decision making done by an investor, Pinsker (2007) indicates that the sequential disclosure of information will cause greater adjustment of belief than the simultaneous one, both after the consistent first serial of information (short serial information) and the second serial information which direction is contradictive (long serial information). Trotman and Wright (1996) give evidence which indicates that *recency effect* shown by the participant with *SbS* model of respond instead of the one with *EoS* model of respond. The study done by Ashton and Kennedy (2002) also gives similar evidence that *EoS* method *that* is not affected by the order effect which indicates

that *EoS* disclosure pattern is the effective method to reduce the recency in *going concern* decision made by auditor. Based on said argumentation, the hypothesis of study can be formally stated as follows:

H3 The EoS disclosure pattern causes no difference of judgment between the investor who receives + + – – and the investor who receives – – + + order of information.

H4 The recency effect will not happen to the judgment investor when receiving + + – – or – – + + order of information in EoS disclosure pattern.

3 Method of study

3.1 The participant of study

The students of accounting department of private university in Surabaya are employed as the sample in this study. *Treatment* in this study relates to

1 the disclosure pattern (*SbS* and *EoS*)

2 information order (+ + – – or – – + +).

There are 173 participants totally at first but there are only 93 participants who pass the *manipulation check* and can be employed in the next testing. There are totally 93 participants categorised as follows: 24 participants receive *SbS treatment* with disclosure direction + + – –; 23 participants receive *EoS treatment* with disclosure direction – – + +; and 23 participants receive *EoS treatment* with disclosure direction – – + +.

3.2 Experiment design

This study uses 2 × 2 (*between subject*) experiment method. Independent variable in this study shall include

1 disclosure pattern (*SbS* and *EoS*)

2 disclosure direction (+ + – – or – – + +).

Independent variable is the effect of decision made by the investor on the determination of company stock value.

The experiment subject will be divided into two groups. This grouping relates to the disclosure pattern (*SbS* and *EoS*) and disclosure direction (+ + – – or – – + +). The grouping by means of given treatment is shown in Table 1.

Table 1 The grouping treatment

Information type	*Disclosure patterns*			
	(Step by step)		*(End of sequence)*	
	Group 1		*Group 2*	
Accounting information	Information order + + – –	Information order – –+ +	Information order + + – –	Information order – –+ +

3.3 Task and procedure

The experiment in this study employs *paper and pencil test* method namely the experiment done by means of questionnaire answered by the subject manually. All experimental jobs for each *treatment* (in the form of evidences order + + – – and – –+ +; and *SbS* and *EoS* disclosure pattern) done randomly. The experiment of this study is done in 3 shifts those are at 9:00 a.m., 12 p.m., and 3:00 p.m. (on the same day).

The participant of this study will be asked to assume the role of investor who is judging the performance of company based on the financial information of company. The job of participant is to evaluate the stock price of PT. ABC Company that is a *hypothetical* company taken from the real company registered with The Indonesian Stock Market as the example. At early stage, the participant will receive information of company background, and the initial value of company stock is decided to be as much as IDR10, 000 which serves as the reference value. The participant is asked to re-evaluate the stock price value of company for each pattern of disclosure (*SbS* and *EoS*) and fill the column of stock value with the multiple of IDR1, 000. It can be the multiple of –1, 000 (minus one thousand) or +1, 000 (plus one thousand) with basic/initial price (reference price) as much as IDR 10, 000. After reading and making respond to the disclosure item, the participant shall respond to the questions of *manipulation check*, *psychological experiment* (to measure the *over confidence* characteristic), and the question to measure the basic accounting capability of participant and respondent's demographic item. The procedure must be followed by the participant who is going to re-evaluate the stock value based on the pattern of disclosure (*SbS* and *EoS*) illustrated in Table 2.

Table 2 Procedure followed by the participant by virtue of disclosure pattern

Disclosure pattern			
Step by step		*End of sequence*	
1	To read about the background of company.	1	To read about the background of company.
2	To be given information with respect to the initial price of stock.	2	To be given information with respect to the initial price of stock.
3	To be given information of positive financial statement disclosure (8 items) followed by negative financial statement disclosure (8 items) or negative financial statement disclosure (8 items) followed by the positive financial statement disclosure (8 items).	3	To be given information of positive financial statement disclosure (8 items) followed by negative financial statement disclosure (8 items) or negative financial statement disclosure (8 items) followed by the positive financial statement disclosure (8 items).
4	To re-evaluate the stock value of company for 16 times (for each given evidence).	4	To re-evaluate the stock value of company for 1 time that is when the participant is given 16 items of disclosure.
5	Participant is asked to respond the manipulation check question, and the question to measure the basic Accounting capability of participant and respondent's demographic item.	5	Participant is asked to respond the manipulation check question, and the question to measure the basic Accounting capability of participant and respondent's demographic item.

The information of company background given in this study to 4 groups of participant is similar to the followings:

> P.T. ABC, Tbk was established on December 5, 1993. On November 16, 1981, the Company receives license from Stock Market Supervisory Board Director (BAPEPAM) issued under No.S1-100/PM/E/1981 to offer 15% of its stocks at The Indonesian Stock Market. The business activity of company includes consumer goods manufacture, marketing and distribution which are soap, detergent, margarine and dairy products, ice cream, tea beverage and cosmetics. The company started its operational activity in 1993.
>
> On November 22, 2000, the Company entered into a cooperation agreement with P.T. DEF to establish a new company named P.T. AD which produces ketchup, chilli, and other sauces and brand names production, development, marketing and sales under the license of Company. Since the beginning of August 2007, the Company increased its investment in P.T. AD to be 100% that terminated the cooperation agreement held between the Company and the aforesaid P.T. DEF. *The stock value of P.T. ABC Company today is of IDR 10, 000.*

This study employs sixteen (16) items of information taken from the financial statement of company those are categorised into eight (8) items of information with positive direction and eight (8) items of information with negative direction.

1 current assets of company *increases* than the last period
2 liquidity ratio of company *increases* than the last period
3 profitability ratio of company *increases* than the last period
4 the sales of company in this year is the *highest* among the companies in the same business of industry
5 total assets of company *increases* than the last period
6 operational profit of company *increases* than the last period
7 operational cash flow received by the company is *higher* than the last period
8 net profit value of company in this period is *higher* than that of companies in the same business of industry
9 current assets of company *decreases* than the last period
10 liquidity ratio of company *decreases* than the last period
11 profitability ratio of company *decreases* than the last period
12 the sales of company in this year is the *lowest* among the companies in the same business of industry
13 total assets of company *decreases* than the last period
14 operational profit of company *decreases* than the last period
15 operational cash flow received by the company is *lower* than the last period
16 net profit value of company in this period is *lower* than that of companies in the same business of industry.

3.4 Variables of study

The dependent variable in this study is the revision of decision made by investor with respect to the evaluation of company stock. The independent variable employed in this study consists of 2 active independent variables (manipulated) that are: disclosure pattern (*SbS* and *EoS*) and information order (+ + – – or – –+ +).

3.5 Data analysis technique

Hypothesis testing in this study employs ANOVA statistic test and t test. Hypotheses 1 and 3 will be tested by means of *one-way ANOVA*. The researcher will see whether there is different belief revision between the subject who receives + + – – order of information and the subject who receives – –+ + order of information both for *SbS* and *EoS* disclosure patterns. Table 3 shows the cell to be compared with respect to hypothesis test in this study by means of ANOVA.

Table 3 Hypothesis test cell

Information type	*Information order*	*Disclosure pattern*	
		(Step by step)	*(End of sequence)*
		Group 1	*Group 2*
Accounting information	Information order + + – –	Cell 1	Cell 3
	Information order – –+ +	Cell 2	Cell 4

The first hypothesis is done by comparing cell 1 and cell 2 and it is said to be statistically supported when there is a significant different statistically between the subject who receives + + – – (cell 1) order of evidences and the subject who receives – –+ + order of evidences (cell 2). The third hypothesis is done by comparing cell 3 and cell 4 and it is said to be statistically supported when there is a significant different statistically between the subject who receives + + – – (cell 3) order of evidences and the subject who receives – –+ + order of evidences (cell 4).

The second hypothesis will be examined by comparing the average of two experiment groups (cell 1 and cell 2) using *t test* and it is supported by a graph. The second hypothesis is said to be supported when the average participant group who receives + + – – order of evidences is smaller and statistically significant than the participant group who receives – –+ + order of evidences, namely cell 1 and cell 2. It can be mathematically written that the average + + – – < the average – –+ +, cell 1 < cell 2.

Hypothesis 4 will be examined by comparing the average of two groups of experiment (cell 3 and cell 4) and it is done by means of t test. The fourth hypothesis is said to be supported when the average of participant group which receives + + – – order of evidence is not different statistically significant with the participant group which receives – –+ + order of evidence namely cell 3 and cell 4.

4 Research result

4.1 Manipulation check and descriptive statistics

Manipulation check is done at the early stage to find out whether the subject understands *whether the participant understands the direction of information given in the case of receivable decision*. Each subject must decide correctly the direction of information acquired, whether + + – – or – –+ +. The subject who cannot decide the direction of information correctly will be excluded in the next analysis. The first participants in this study totally are 173 participants, but there are 80 (46%) participants who fail the manipulation check, so that there are only 93 participants (54%) who can be involved in the next analysis. The participants in this study are student(s) of accounting department who have already sat for financial statement analysis and investment management class. This criterion is chosen since the students with such criterion are considered to have the understanding of company evaluation based on its financial statement. The participants of this study are grouped into 4 groups: the participants of first group shall receive + + – – order of evidence with *SbS* disclosure pattern; the participants of second group shall receive – –+ + order of evidence with *SbS* disclosure pattern; the participants of third group shall receive + + – – order of evidence with *EoS* disclosure pattern; and the participants of fourth group shall receive – –+ + order of evidence with *EoS* disclosure pattern. The experiment in this study is performed in 3 shifts, at 9:00 a.m., 12:00 p.m., and 3:00 p.m. The test whether time interval will cause different result of experiment ~~is~~ performed to avoid bias that may occurs due to time interval. ANOVA test is done to decide whether there is a different result due to time interval of experiment performance as shown in Table 4.

Table 4 ANOVA test results related to time difference

Disclosure pattern	*F*	*Sig*
Step by step (SbS)	0.134	0.875
End of sequence (EoS)	0.113	0.893

The result shown in Table 4 indicates that shift variable is not significant, so that it can be concluded that experiment done at different time will not affect its result. It indicates that different time of experiment performance is not confounding effect, so there is not any different result of experiment and further analysis *that* can be done.

The assignment given in the experiment shall ask the participants to answer 5 (five) questions with respect their *over-confidence* character. This is to test whether such characteristic of participant will affect the investment decision. The test done by means of ANOVA indicates that there is not any difference in making the decision about investment between the over-confident participant and the less-confident participant for the *SbS* group of participant ($F = 0.225$; $p = 0.638$). The *EoS* group of participant indicates that there is different decision about investment between the over-confident participant and the less-confident participant ($F = 4.117$; $p = 0.049$). The average value of *EoS* group for those *who are* over-confident participants (9, 500) is lower than those less-confident participants (10, 892). It indicates that belief revision of over-confident participants is lower than the less-confident participants when the disclosure pattern is *EoS*.

The assignment given in the experiment shall also ask the participants to answer 10 (ten) *multiple choice* questions with respect of Accounting basic skill. This is to test whether there is different skill of basic accounting among the participants. The test done by means of ANOVA indicates that there is not any different skill of basic accounting among the groups of participant ($F = 0.869$; $p > 0.10$). Table 5 shows the descriptive statistic for each condition of experiment namely the condition with – – + +and + + – – orders of information.

Table 5 Descriptive statistics based on experiment treatment

Disclosure pattern	*Experiment treatment*	
	+ + – –	– – + +
Disclosure pattern		
Step by step (SbS)	24	23
End of sequence (EoS)	23	23
Total	47	46
Gender		
Male	10	13
Female	37	33
Total	47	46
Average score of basic accounting ability	73	69

4.2 Research hypothesis test

The first hypothesis proposed in this study is the presence of different revision of belief between the investors who evaluate by means of *SbS* order of information + + – – and – – + +. The statistic result of analysis based on the data of study by means of ANOVA (Table 6) indicates that there is significant difference statistically in belief revision done by the investor who receives + + – – order of information and the one who receives – – + + order of information with F value of 68, 858 (p = 0, 000). This statistic result indicates that there is order effect experienced by the *judgment* investor when revising his/her belief of financial information *that* he/she acquires when the disclosure pattern is *SbS*. This result supports Hypothesis 1.

Table 6 ANOVA test results for Hypothesis 1 and Hypothesis 3

Disclosure patterns	*F*	*Sig*
Step by step (SbS) pattern	68.858	0.000
End of sequence (EoS) pattern	1.435	0.237

The third hypothesis proposed in this research is the absence of belief revision difference between the investors who evaluate by means of *EoS* order of information + + – – and – – + +. The statistic result of analysis based on the data of study by means of ANOVA (table 6) indicates that there is not any significant difference statistically in belief revision done by the investor who receives + + – – order of information and the one who *receives* – – + + order of information with F value of 1, 435 (p = 0, 237). This statistic result indicates that there is not any order effect experienced by the *judgment* investor when

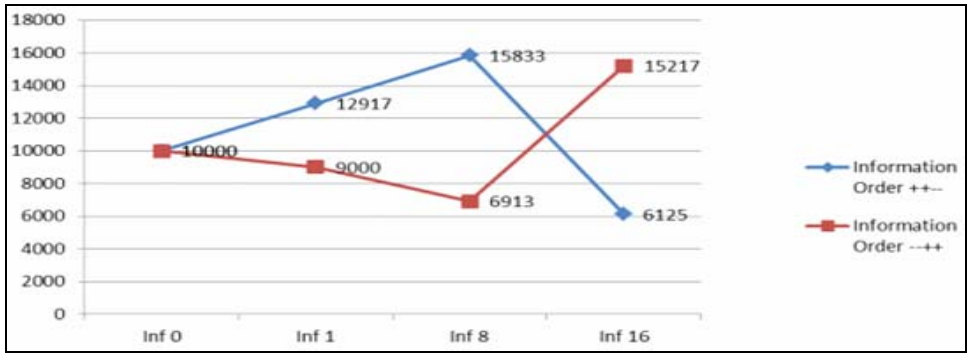
revising his/her belief of financial information *that* he/she acquires when the disclosure pattern is *EoS*. This research result supports Hypothesis 3.

To testify the second hypothesis whether there is recency effect in order effect, then the average belief revision of investors group that receives + + – – order of information is compared to the group that receives – – + + order of information. Further test by means of t-test is done later to see whether the difference is statistically significant or not. The recency effect is said to occur when the average of investors group who receives + + – – order of evidence is smaller than the one who receives – – + + order of evidence. The average data of both groups (Table 7 panel A) demonstrates that the average of + + – – group is 6, 125, smaller than the average of participants group that receives – – + + order of information that is 15, 217. The result of t-test indicates that t value is –8.298 and p = 0.000. It indicates that recency effect occurs and the second hypothesis is supported. This support is confirmed by Figure 1 that indicates there is *fishtail* pattern in the belief revision made by the investors.

Table 7 Belief revision on share value in *SbS* and *EoS pattern*

Panel A: *Step by step* (SbS)	
Information order	Average of share value
+ + – –	6.125
– – + +	15.217
Panel B: *End of sequence* (EoS)	
Information order	Average of share value
+ + – –	10.761
– – + +	9.935

Figure 1 The fishtail graph on the beliefs revision on *BS* disclosure patterns



The fourth hypothesis in this study is that there is not any recency effect on *EoS* disclosure of both investors who receive + + – – and – – + + orders of information. Test by means of t-test then is done to see whether there is a difference or not. The recency effect is said to occur when the average of investors group who receives + + – – order of evidence is smaller than the one who receives – – + + order of evidence. The average data of both groups (Table 7 panel B) proves that the average of + + – – group is 10, 761

greater than that of participants group who receives + + – – order of information which is 9, 935. The result of t-test shows that t value is 1, 198 and p = 0, 237. It indicates that there is not any recency effect and the fourth hypothesis is supported accordingly.

This result shows that *recency effect* will occur when the disclosure pattern in *SbS* which is consistent with the model proposed by Hogarth and Einhorn (1992) and the result of study done by Messier (1992), Asare (1992), Tubbs et al. (1993), Bamber et al (1997), Tuttle et al. (1997), Ahlawat (1999), Baird and Zelin (2000), and Pinsker (2007). It indicates that when the investor receives the evidence sequentially (*SbS*) with + + – – order of pattern then such investor will give negative judgment, but when he/she receives the evidence sequentially (*SbS*) with – – + + order of pattern then such investor will give positive judgment. The result of study implicates that the disclosure practice done by the company when the disclosure is done part by part of gradually, then *recency effect* will occur that the investor as financial information user will respond to the last information that he/she receives. The effect is such a biased investment decision made by the investor since he/she will use the last information *that* he/she receives.

The result of this study also shows that one of those methods can be used to eliminate *order effect*, especially the *recency effect*, is *EoS*. This result is consistent with the theory presented by Hogarth and Einhorn (1992) and the result of study done by Trotman and Wright (1996), Ashton and Kennedy (2002), and Pinsker (2007). The result indicates that when the investor receives evidence simultaneously (*EoS*) whether by means of + + – – order of pattern or – – + + then the investor will give a more objective judgment. This is because the investor does a comprehensive judgment to all evidences that he/she receives whether it is positive or negative. The result the implicates that the disclosure practice done by the company when the disclosure done by the company comprehensively and thoroughly then there will not be any *recency effect*, and the investment decision made by the investor will be more objective since the information will use all information that he/she receives to make such investment decision.

5 Conclusions, study shortcoming and further study

This study aimed to test the *order effect* in the decision making of information. This study tried to develop the study done by Pinsker (2007) and Ashton and Kennedy (2002) by testing the *recency effect* on *SbS* and EoS patterns with respect to the judgment decision of the company by means of company financial information. The final participants of this study are 93 persons those are the students of accounting department at a private university in Surabaya. The result of the study shows the presence of *order effect* in the decision making of investment that is *recency effect* when the disclosure pattern is a *SbS*. It also demonstrates that there is not any recency effect when the disclosure pattern is an EoS. Some previous research results (Pinsker, 2007; Ashton and Kenndey, 2002) conducted research with participants outside Indonesian culture; these results also provide evidence of the existence of belief adjustment model developed by Hogarth and Einhorn. Moreover, these researches provide evidence that recency effect that is one of cognitive biases in investment decision making occurs regardless of differences in culture.

This study has several limitations. *First*, a few participants who pass the *manipulation check* indicates that there is some biased financial information since the participants

consider that certain information is positive, in fact it is negative, and vice versa. *Second*, the participants of this study are accounting department students, so that their competency to judge a company based on its financial information may have shortcomings. *Third*, these studies only use one information that is financial statement, whereas an investor will not refer to the financial information only when he/she is going to evaluate a company. *Fourth*, this study tests one factor only that is *EoS* to reduce the *recency effect*.

Further study to develop this study can be done providing: *first*, there is better information used in this study in order to increase the number of the participant who will pass the *manipulation check* by doing a *pilot test* to the instrument of experiment *that is* going to be used before making the real one. *Second*, the participants of the next study can be taken from real investors or students *who* are sufficient, but *training should be* given to them for a certain period in order to standardise their competence and perception in making company evaluation/judgment based on the information about such company. *Third*, the study done to test some information indicates to have effect on *investment* judgment namely financial information (financial statement) and non-financial information, such as *corporate social responsibility*. *Fourth*, the study *is* done to test other factors, in addition to *EoS,* to eliminate the recency effect, those (which) are experience, *biasing method* and *judgment* that done in groups.

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